Committee
Of
Planning and
Coordinating
Organizations

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SOCIAL INDICATORS AND MICROCOMPUTERS:

Social Planning Strategies
for the Committee of
Planning and Co-ordinating
Organizations (COPCO)

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MARCH 1985

BY

THE COMMUNITY RESEARCH UNIT (CRU)

A project administered by the **Social Planning Council of Metropolitan Toronto** on behalf of the **Committee of Planning and Co-ordinating Organizations**

CRU is funded by **Health and Welfare Canada** through a Research Group Development Grant. The views expressed in this report do not necessarily reflect the views of the Department of National Health and Welfare.

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Copies available at: The Social Planning Council of Metropolitan Toronto,
950 Yonge Street,
Suite 1000,
Toronto, Ont.
M4W 2J4

Price: $5.00

ISBN: 0-919456-31-6

PREFACE

The Community Research Unit was established in January 1985, with the support of a Health and Welfare Canada Research Group Development Grant, to assist local, municipally-based social planning and co-ordinating organizations in Metropolitan Toronto with their research activities.

Many of these activities involve the direct analysis of demographic information about people in the various municipalities, communities and neighbourhoods in order to determine where potential needs may exist. But more common is the use of census and other demographic data to provide a context or background picture in support of specific local needs assessment studies.

Of these, the former has proven to be the most difficult to manage since true analysis of large data sets across a major urban area such as Metro cannot be accomplished manually. As computers have not yet been as firmly established in the social planning field as in business and commerce, and since most of the members of COPCO (as displayed on the front cover) do not enjoy adequate funding, this analytical capability has not yet been explored by local groups.

Social Indicators and Microcomputers was written for the purpose of starting dialogue among planning bodies about more advanced methods and the technologies necessary to support them.

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1. INTRODUCTION

The purpose of this study is not to provide a review of social indicator research; the literature on this subject is large and accessible, as are a number of good general reviews (e.g., Carley, 1981). Rather, it is to describe, on the basis of this research, how social indicators can best be used - with microcomputer and appropriate software - to enhance social planning at the community level.

With this objective in mind three main topics are examined:

1. the development of a methodological framework for social planning in Metro Toronto;
2. the application of microcomputers to social planning; and
3. the development of a social profile of East York using computer graphics as an **example** of what might be done on a Metro-wide basis.

Each topic illustrates how a practical and efficient communty based planning strategy could be implemented; a strategy that would meet many of the operational requirements of COPCO's Community Research Unit and its member organizations.

2. TERRITORIAL SOCIAL INDICATORS AND AREA PROFILES

Research on social indicators has been wide ranging in terms of its objectives, methodology, conceptual basis, and focus. On one hand the "indicator approach" has been adopted as a means of assessing national well-being, on the other it has been proposed as a means of evaluating specific area-based social programs or predicting social problems. Unfortunately, the use of social indicators has proved disappointing, especially for program evaluation and problem prediction. For those two purposes a much more detailed understanding of how the social system functions is required. However one topic of indicator research - territorial social indicators and social area profiles - has produced practical applications which are of particular relevance to social planners working in urban communities. Knox (1978) describes territorial social indicators and social profiles as generic terms referring to a family of overlapping descriptive techniques which fall into three functional categories:

1. Summary Studies: These serve basically as references. Data are presented in tables and charts census and other government sources with a minimum of comment or explanation. The Metropolitan Social Profile: A Guide to Social Planning Facts in Metropolitan Toronto, produced by the Social Planning Council is an example.

2. Measurement Studies: These attempt to measure, at a single point in time, the relative position of areas or urban centres from "good" to "bad" or "best" to "worst" on some conceptual dimension such as health care, education,

and so forth. Social Profiles: Quality of Life Measures for Medium-Sized Canadian Cities, published by Canadian Mortgage and Housing Corporation in 1979, is an example of this type of study although the "good-bad", "best-worst" assessment is left implicit.

3. Information-System Studies: These provide a comprehensive base for a whole series of secondary analysis of specific topics. Primary analysis consists of a classification of social sub-areas according to a wide range of social and economic characteristics. This typological and area framework form the basis for additional analysis of specific social concerns. Although the factorial ecology research of Murdie (1969) falls into this category there has been no attempt to adopt it for social planning purposes in Metro.

Of these three techniques the information-system of social area typology offers the most flexible and conceptually viable strategy. It provides policy makers and planners with a method of analysis capable of uncovering the very real differences and relationships which exist in the city without becoming bogged-down in redundant detail. It also allows them to identify groups and individuals on a number of dimensions and within a broader social context. At the operational level (Webber 1978) it provides a 'data structuring' framework:

1. To reduce and simplify a complex set of data so that salient features are readily visible and

forced out of the material according to their own pattern rather than that imposed upon them by pre-existing theory;

2. To evaluate critically the assumptions on which existing policies and predictive or prescriptive techniques are based;

3. To act as a 'noise' filter by aggregating small areas so that random or stochastic events do not mask significant trends or relationships;

4. To define priority areas with respect to different policies and to define priority issues with respect to different areas;

5. To undertake monitoring activities and to design and carry out selective surveys;

6. To identify unique areas in which existing policies, programs and predictive techniques may not be effective; and

7. To provide a common basis for the discussion of social issues across Metro.

2.1 Development of a Social Area Typology

The development and application of social area typologies in Britain has been documented by Webber (1975, 1977, 1977, 1978, 1979). Conceptually, it is straight forward: cluster analysis is used to

TABLE 1

SOCIAL INDICATORS (VARIABLES) FOR RESIDENTIAL TYPOLOGY

POPULATION STRUCTURE

% population 0 - 4
% population 5 - 17
% population 18 - 24
% population 25 - 44
% population 45 - 64
% population 65 - 75
% population 75 +
% population change 1976 - 81
sex ratio
% single persons in adult population

TENURE/DWELLING CHARACTERISTICS

% dwellings owner-occupied
% dwellings rented
% dwellings requiring major repairs
% dwellings single detached
% dwellings single attached or duplex
% dwellings apartments 5 storeys +
% dwellings apartments <5 storeys
% dwellings built ≤1960
% occupancy ≤2 years
% occupancy >6 ≤10 years
% occupancy >10 years
average number rooms per dwellings
average market value of owned dwellings
average monthly rent (1-family house)
homeowner's average major pay.(1-family house)

CULTURAL/ETHNIC/RELIGIOUS/MIGRANT

% migrants from other provinces
% migrants from Ontario
% migrants from outside Canada
% population English mother tongue
% population Italian mother tongue
% population Portugese mother tongue
% population Greek mother tongue
% population East European mother tongues
% population Spanish mother tongue
% population Indo-Pakistan mother tongues
% population Catholic
% population Protestant
% population Jewish
% population other religious denomination
% population no religious preference

HOUSEHOLD CHARACTERISTICS

% single person households
% 2-person households
% 3 - 5 person households
% 6 + person households
% family households
% lone-parent households
% families with all children < 6
% families with children ≥6 ≤14
% households with multifamilies
number persons per roon
number persons per household

LABOUR FORCE

male participation rate
female participation rate
unemployment rate
% labour force in manufactoring
% labour force in construction
% labour force in trade
% labour force in communications, business and personal service
% labour force in public administration
% labour force in self employment

SOCIO-ECONOMIC

total income, 1980, private households
total income, 1980, families
total income, 1980, non-family persons 15 +
incidence low income, 1980, economic families
incidence low income, 1980, unattached persons
% labour force in management, administration and related
% labour force in service occupations
% labour force in machinery, product fabrication
% labour force in clerical and related

EDUCATION

% population <grade 9 schooling
% population grade 9 - 13 (without certificate)
% population with secondary certificate
% population with trades certificate or diploma
% population with other non-u education
% population with university degree

group spatial units into relatively homogeneous aggregations. This procedure can be readily visualized by means of Figure 1 where nine spatial units, represented by the letters A to I are located in terms of their scores on three variables. The units are combined (see figure 2) in a stepwise fashion according to their closeness or similarity to one another.

In reality, the cluster analysis does not have an objectively optimal solution. Rather the researcher seeks to obtain a classification which meets three main conditions:

1. it is useful for specified planning and research purposes;
2. each pair of clusters/families is identifiably different in social characteristics; and
3. the internal similarity of the clusters is maximized while the inter-cluster similarity is minimized; i.e., the variance accounted for by the classification is as high as possible.

A social area analysis for Metro Toronto would be based on many spatial units and a broad range of socio-economic variables. These units would be submitted to a cluster analysis and a detailed descriptive profile would be produced for each "cluster" or community type. Because these initial clusters would tend to be too diverse and numerous for many planning purposes they would be submitted to a second grouping procedure. The result would be a more manageable number of residential area 'families' described by social profiles created by calculating the mean scores of a large set of indicators,

Figure 1

CLUSTER ANALYSIS

Nine Tracts in 3-Dimensional Space

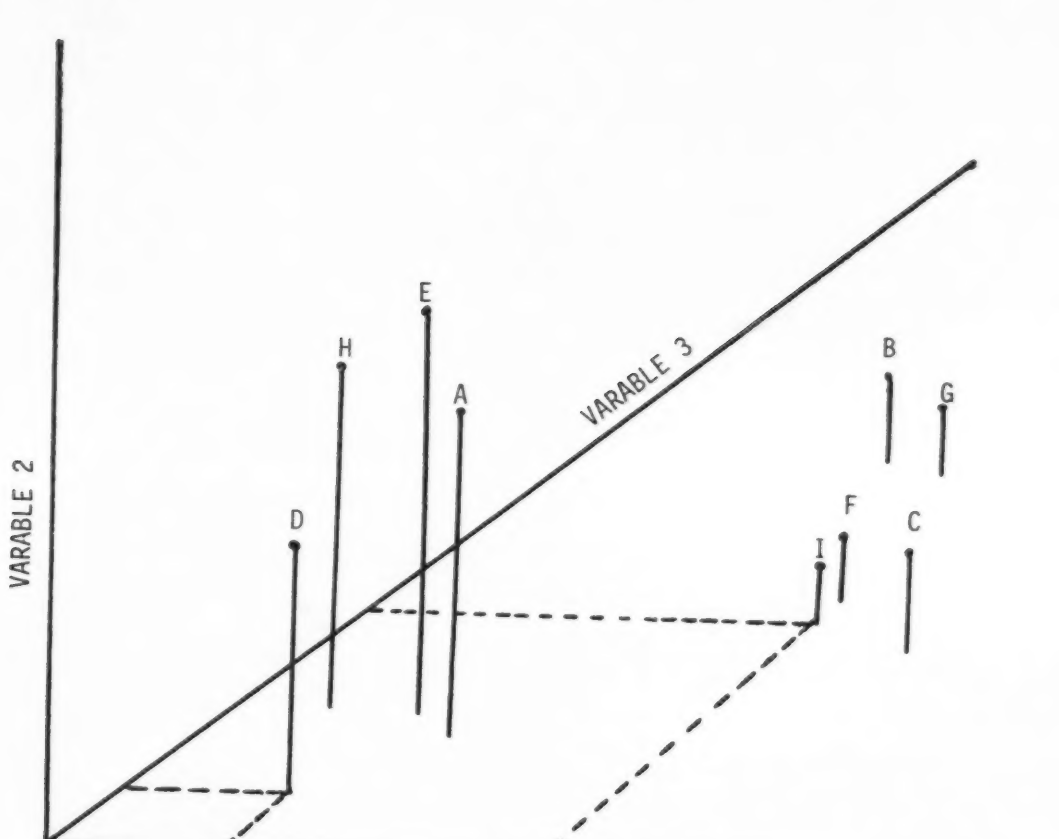
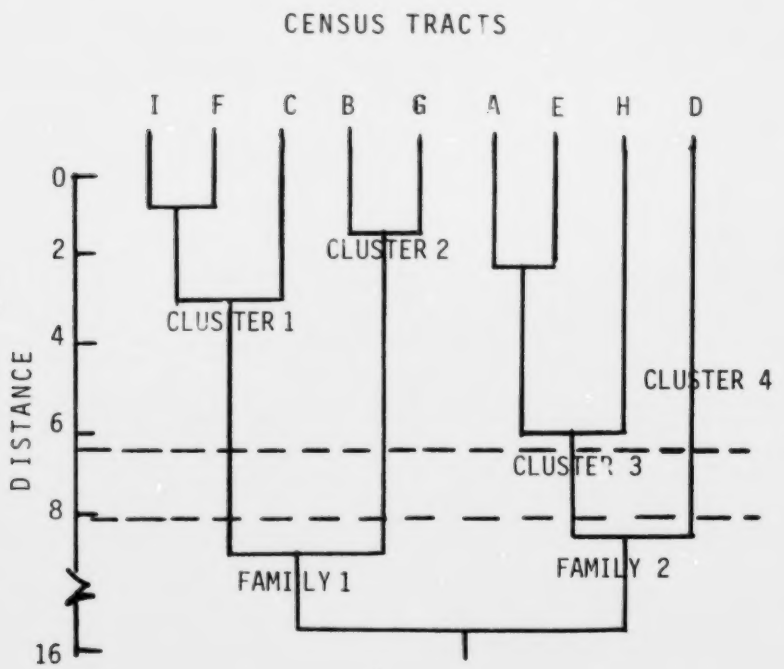


Figure 2

STRUCTURE OF THE GROUPING PROCESS



including the variables used in the initial clustering procedure. These profiles would allow planners to interpret each cluster and family in terms of a large number of characteristics. In addition, their spatial distribution would be mapped to provide a better understanding of the underlying social structure of Metropolitan Toronto. Figure 3 provides a schematic diagram of this technique.

2.1.1 The Choice of Variables and Spatial Units

As shown in figure 4, the data required for the proposed analyses fall into three categories and perform two functions.

From a conceptual and practical standpoint the Census is the best source of data for the classification procedure. The 1981 Census provides a large number of variables at the individual, family, household and dwelling unit level (and data from previous censuses are available for creating additional variables reflecting change over time). Furthermore, the data are readily accessible from user summary tapes. In addition, the census tract provides a convenient spatial unit for the analysis. Its boundary follows easily recognized lines on the ground; it is physically compact; the population averages about 4,000 persons; and it is fairly homogeneous in terms of economic status and living conditions.

Although census variables obtained from summary tapes are most appropriate for the creation of the two level typology -clusters and families of tracts - it is necessary to develop a larger data base which can provide a more detailed description of the social areas identified, measure their similarities/differences as well as serve a

Figure 3

Metro Toronto Social Area Study Residential Typology

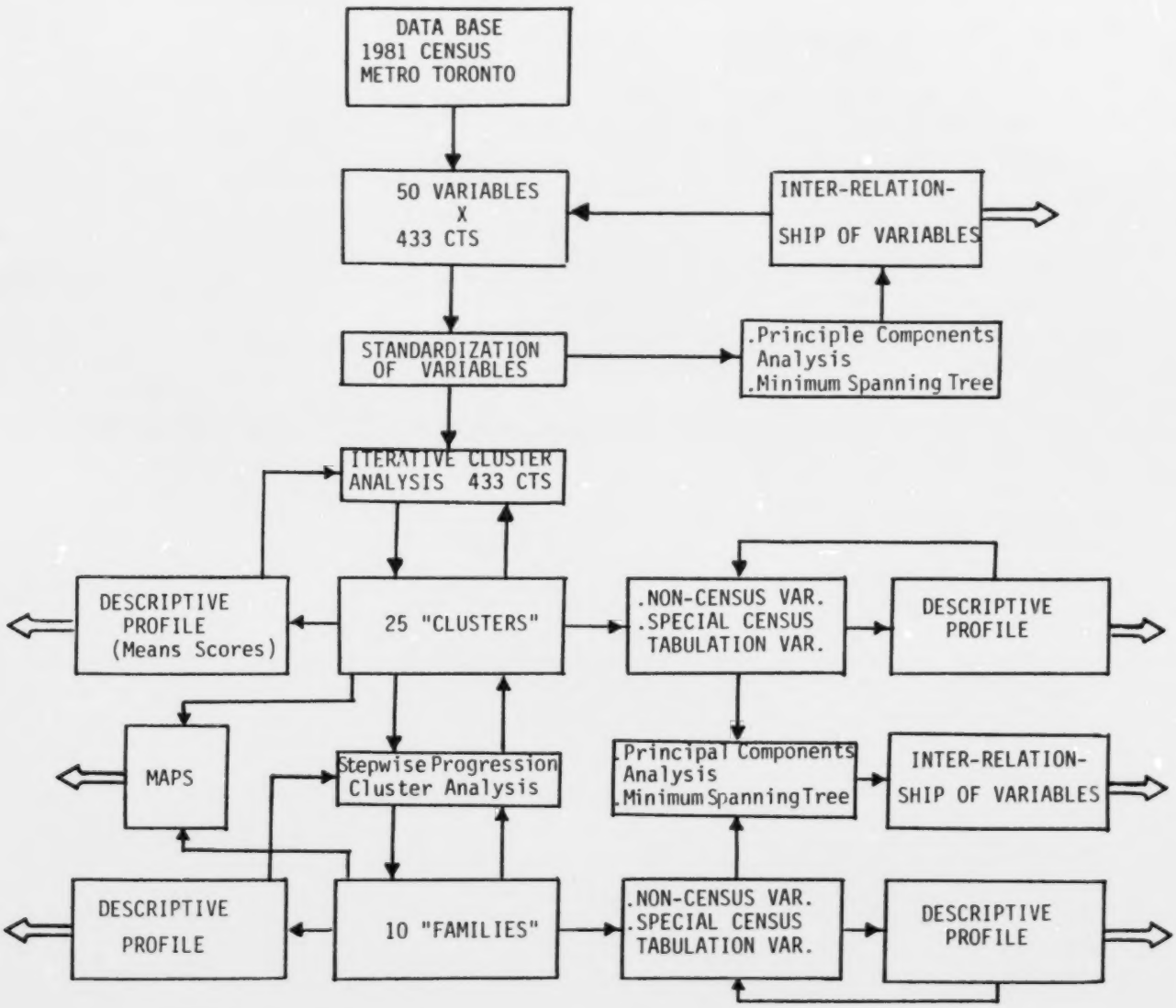


FIGURE 4 - VARIABLE TYPES

CATEGORY	FUNCTION: SOCIAL AREA CLASSIFICATION	FUNCTION: SOCIAL AREA PROFILE
CENSUS	X	X
SPECIAL TABULATIONS		X
NON-CENSUS		X

---

variety of planning and heuristic purposes. This can be achieved by assembling a wide range of non-census variables along with new variables created by custom tabulations of the census micro-data base.

Considerable care is required in selecting variables whether for classifying tracts, preparing social profiles or specific planning studies. The following points should be kept in mind while undertaking this task:

1. Theoretically, an almost infinite number of variables can be derived from the census. As a result many may prove to be rather arbitrary, insensitive and ambiguous indicators.

2. For classification purposes variables should be selected so as to cover an appropriate range of policy topics with proper balance. Table 1, for example,

lists 76 census variables grouped under seven topics.

3. Variables should be chosen which are particularly efficient at differentiating qualitatively distinct types of residential areas.

4. The data set should incorporate the largest possible number of dimensions. To achieve this objective, while avoiding redundancy due to highly correlated variables, principal component and minimum spanning tree analysis can be used to examine the underlying structure of the data (i.e., how the variables are correlated with one another - see figure 3).

5. The variables should produce a classification where intra-group variance is minimized and inter-group variance is maximized not only for the classifying census variables but also for the descriptive variables.

6. It is necessary to ensure that esoteric or complex variables are not neglected in favour of more accessible or conventional data. A good deal of ingenuity and work can be required to track down useful sources of information.

7. Non-census data are particulary important in providing more explicit social dimensions to area profiles. Dimensions such as health, leisure activity, social stability, and environmental quality can often be

obtained from other sources (e.g., municipal, provincial or federal government agencies, special surveys, or previous studies; see Table 2).

8. Caution must be exercised in the use of non-census variables; their reliability and validity is often open to question. Many relate to current levels of service provisions in a community and cannot, therefore, be construed as direct indicators of problems as such. Others reflect complex social phenomenon. For example, the incidence of criminal code offences in an area may be more a function of the residents reporting behaviour than the actual number of criminal acts.

9. Many non-census and census variables created by special tabulations are often based on a sample which is too small to be 'diagnostic' at a tract level. However, they may prove very useful at a higher level of spatial aggregation. Table 2 lists several variables of this type which could be created to characterize the elderly population on a municipal or Metro-wide basis.

Table 2
Examples of Non-Census and Specially Tabulated Variables

- elderly owner-occupiers in homes valued at ¶$100,000 and incomes §$12,000 as percentage of total elderly owner-occupiers.
- elderly owner-occupiers in homes valued at §$100,000, in need of major repair, and have incomes §$12,000 as percentage of all elderly owner-occupiers.
- elderly rental households with ¶2 members aged ¶75 with a total income of §$12,000, rent §$500 month, occupied for ¶10 years as percentage of all elderly rental household.
- single elderly persons receiving GAINS as percentage of total single elderly population.
- elderly couples receiving GAINS as percentage of total population of elderly couples.
- percentage of elderly population who received home care during previous year.
- percentage of elderly population institutionalized in a nursing home during the past year.
- percentage of elderly population who receive meals-on-wheels.

2.1.2 Operational Uses

As briefly outlined above, the development of a social area typology provides the planner with a very flexible and valuable framework within which to examine the city. A number of different approaches merit closer examination.

1. Measuring the Performance of Tracts, Clusters and Families

Tables can be readily constructed to show how various residential classifications perform on a variety of indicators. These measures can be expressed in a number of ways:

i) rates per 10,000 population at risk - provides a useful indicator of need for services;

ii) percentage of the Metro or municipal mean - provides a picture of the relative concentration of different distributions in the study area;

iii) percentage of the total Metro or municipal population - allows need to be related to the overall level of resources; and

iv) standardized scores - allows the same area to be compared on a variety of different variables within a municipal or Metro-wide context.

A dynamic component can also be incorporated into the measures by using the typology to provide a framework for on-going monitoring of social change. Various non-census data (i.e., number of recipients of welfare, family benefits and unemployment insurance benefits) can be 'address - referenced' to particular clusters of families in order to follow structural changes in the population even over short time periods. Furthermore, because a cluster (or family) is a multi-variate construct it can never be exhaustively

defined. However, the ability to monitor change, add variables and up-date data as well as to display information in a variety of ways - provides the planner with an opportunity to continually reinterpret the character of the area, thereby gaining a better insight into the underlying social processes at work.

2. Structuring the Design and Interpretation of Surveys

Many problems and client groups are spatially concentrated in particular types of social environments. Therefore, with the aid of a residential typology, it is possible to focus additional research resources on specific areas, problems or vulnerable groups. Surveys, in particular, could be 'custom tailored' to acquire information more economically than would otherwise be the case. For example, not only would an intensive area - specific survey be valuable in its own right, but the data could be used to provide Metro wide estimates. Similarily, the result of a relatively small scale survey could be related to variables derived from census data.

An example of a social planning problem that lends itself to this kind of research methodolgy is the provision of home support services to the elderly. With unlimited resources it may be appropriate to consider every elderly person as a potential client and design programs based simply on the number and geographic distribution of this population group. In reality, resources are not infinite and considerable care must be taken to ensure that services ar provided efficiently and effectively. The identification of a number of residential types characterized

by seniors differing on a variety of indicators (e.g., household type, income, assets, education, length of residence, tenure, etc.) would provide planners with an opportunity of working toward this objective. For example, surveys of specific residential types could be conducted to examine the relationship between need and a variety of neighbourhood and household characteristics. The role of informal community supports in keeping the elderly independant could also be the subject of survey studies. The result of this work could be the development of a range of programs to encourage and support informal care-giving rather than the expansion of more costly existing services.

3. Studying Specific Problems or Client Groups

The basic methodology employed in a residential typology allows the initially derived clusters to be recombined into new family groupings on the basis of alternative input variables (see figure 5). This is an important option since the initial general-purpose family classification will often be inappropriate for specific planning purposes, for example, those related to groups at risk.

There are two main advantages to this approach. First, the new families are formed from the same basic 'building blocks', i.e., the original clusters - which can be characterized by their profiles on the classifying variables. Second, as noted earlier, by starting from a previous cluster solution the researcher can include variables not even available, or whose distributions are

not statistically reliable, on a census tract level.

An example of this approach would be the determination of priorities of day care facilities. Variables or composite indicators of need could be collected for clusters, standardized and then submitted to a grouping narrative. By relating these data to the underlying social structure identified by the original residential classification, different types of need may become evident. This in turn may suggest a variety of policy and program options which could more accurately meet the special requirements of various day care consumer groups in the community. Also, the standardized indicator scores could be used to evaluate the relative intensity and distribution of need.

4. Studying Specific Districts of Municipalities

A district or municipality, rather than the entire Metro area, can be the focus for a social area analysis. Census tract (or possibly smaller aggregations of enumeration areas) are then considered to be clusters and submitted to a stepwise grouping procedure to form a new typology of family types (see Figure 6). Although the same clarifying variables are used for this analysis, all are standardized by Metro means and standard deviations so that tracts, families and the entire district or municipality can be evaluated in a Metro-wide context. This form of standardization also has the advantage of supporting the weight accorded to those variables which are not significant in the study area, while giving greater emphasis to those

Figure 5

PROBLEM OR CLIENT GROUP ANALYSIS

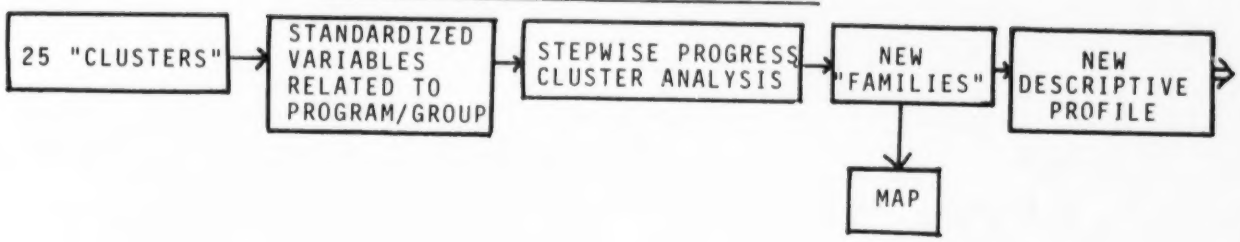
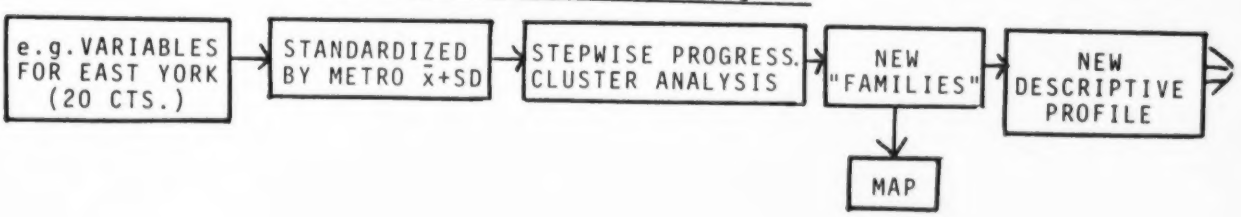


Figure 6

District or Municipal Analysis



distributions which vary considerably within the area. As a result, this research strategy can be particularly useful to local planners and policy makers.

2.2 Subjective Social Indicators

As described above, social area analysis is an essentially pragmatic, empirical method for analyzing the spatial distribution of social data. As such it has a variety of planning and research applications. But it also has a number of practical, methodological and conceptual pitfalls (Knox, 1978). Several of these, relating mainly to data collection and use, were briefly discussed in an earlier section. The most serious criticisms are based on the "problems of weighting and analyzing objective data so that the resultant indicators are as sensitive as possible to social well-being, rather than to the methodological preoccupations and professional predispositions of academics and administrators" (Knox, 1979, p 300).

As a result of this criticism considerable research has been directed to developing new indicators which are sensitive towards people's values and perceptions of life. These subjective or qualitiative indicators seek to measure people's hopes, fears, concerns, needs, preferences, etc. Rather than replacing objective indicators they complement them; both provide important information about different aspects of personal and social well-being. The problem facing researchers, planners, policy makers and program administrators is how to use both types of indicators most effectively. Before addressing this problem it would be useful to briefly examine some of the issues,

problems and potential associated with subjective social indicators. The use of objective or 'hard' social indicators is predicated on two assumptions; 1) that they provide a valid, if indirect, measure of individual well-being, and 2) that an 'improvement' in conditions as measured by such indicators will result in an improvement in the quality of life. In reality, the objective world is only experienced through the individual's own perceptions and then evaluated according to his expectations, experiences, attitudes and present circumstances. It therefore becomes necessary to develop and refine measures of subjective well-being; a task complicated by questions of validity, comparability and interpretation (Knox, 1979). Furthermore, there is a need to relate these measures to indicators of change in the objective environment. If this can be accomplished it then becomes theoretically feasible to introduce policies and programs that have as their objective the overall improvement of the quality of life for the population as a whole.

But even without a comprehensive model of society to connect the various components of subjective and objective reality, psychosocial indicators have a number of practical uses at the community level. For example, they can:

1. Identify and clarify the broad issues at stake in the allocations of funds and the location of public services;

2. Identify priorities for services and public expenditures thereby ensuring against what some have

called 'cultural imperialism' perpetuated by planners and administrators;

3. Measure the perceived well-being of particular populations or groups on one or more life domains;

4. Measure satisfaction of clients or users of various services (or facilities) and provide insights into how they utilize these services in their day-to-day problem solving; and

5. Serve as aides to planning by identifying values and attitudes which will have direct impact on program objectives and goals.

The collection of subjective indicators for one or more of these purposes can best be accomplished by means of sample surveys. Relatively small surveys, using cluster and family types identified in the social area analysis as a sampling framework, can provide valuable information. As an example, consider the question of housing for seniors. Objective indicators may identify an area which has a large population of elderly, low income homeowners. Conventional wisdom may classify them as poor and in need of subsidized housing and or home support services. But how do they perceive themselves? Do many have adequate savings or other non-income assets? What are their attitudes to various home equity conversion schemes? How do they view various programs designed to assist them to remain in their homes? How do they view Metro Toronto Housing Company accomodation? These and similar questions can be readily included in a survey instrument administered to elderly owner-occupiers in the study area.

The following studies have surveyed the attitudes and perceptions of residents of Metro Toronto on a variety of issues:

1. York University, Institude for Behavioural Research, Urban Concerns Study, 1978;

2. York University, IBR, Social Change in Canada Project, 1977, 1979, 1981;

3. City of Toronto, Survey of Residents Attitudes Towards City Services, 1981 and

Although only the latter could be considered to have a social planning objective, they all are useful references for the development of subjective social indicators.

One last comment on subjective indicators: It is often helpful, prior to undertaking an attitudinal survey, to use a more qualitative research strategy in order to gain a better understanding of the topic(s) under investigation. Focus groups or group interviews are one way this can be done. The technique is based on what can be called the phenomenological approach, where the objective is to obtain a "systematic description... of how consumers interpret reality in their own terms" (Calder, 1977). Because the problem of generalizability is not considered, focus groups do not replace the need for sample surveys but do help the design of better survey instruments.

3. MICROCOMPUTER APPLICATION IN SOCIAL PLANNING

Although social planning has been described as a balance of analytical and interpersonal tasks (Lauffer, 1979), in many instances greater emphasis has been placed on its more 'political' aspects. As a result, conferences, inter-agency coordination, citizen involvement and advocacy have been stressed at the expense of a systematic and quantitative research/planning strategy, a strategy involving data collection, analysis and interpretation designed to provide policy makers and program planners and administrators with high quality information appropriate to their specific needs.

This imbalance can be partly explained by the practical difficulties involved in the 'technical' approach to planning. Data collection, storage, manipulation, analysis and display can be difficult, frustrating and expensive if done by hand or through a third party's mainframe computer. However, the relatively recent introduction of the microcomputer and associated software offer social agencies a very accessible and powerful tool which eliminates many of these problems. As a result, a more balanced or 'hybrid' planning approach can be readily adapted. Relatively small agencies can achieve a 'hands-on' capability for short-range programming while larger organizations can undertake more comprehensive long-range planning and policy analysis.

Although Figure 7 lists several social planning applications for microcomputers their usefulness can be illustrated by considering three examples - two hypothetical and one real.

3.1 Example 1 - Policy Analysis

Assume that 25 residential communities have been delineated within Metro (on the bases of a social area analysis or some set of criteria) as service delivery areas. The objective of this hypothetical planning exercise is then to develop a funding formula to allocate monies to each area to finance home help services for seniors requiring assistance with the activities of daily living.

Figure 7

Examples of Social Planning Applications of Microcomputers

- Creation of an efficient data storage and management system designed for a variety of operating, planning and evaluation purposes.
- Analytic and simulation modelling using existing software or specially written programs.
- Quick "what-if" simulations of policy and planning questions using electronic spreadsheets.
- The production of graphics; including a variety of computer generated maps.
- Statistical and spatial analysis of data from a variety of sources.
- Cost-benefit analysis of programs.
- Word-processing for report preparation.

The funders of this program have specified a number of allocation goals:

1. give priority to low income elderly;
2. coordinate with existing programs to encourage home

modifications for physically impaired senior owner-occupiers;

3. give priority to those at greatest risk of institutionalization; and

4. charge a graduated fee for the service based on the client's ability to pay, with fees contributing 25% of total program cost.

Within these constraints the analyst must ensure that a number of objectives are met. First, that funds be equitably distributed in a way which responds to the need of each service area or community, somehow defined and measured. Second, that funds be efficiently distributed to communities (i.e., service providers) which are able to implement the program. And third, that allocation of funds meet the approval of the agencies providing the services in the designated community.

A basic requirement of this task is to clarify and operationalize the concept of need on an individual household and community level. For example, are owner-occupiers generally better able to utilize their informal neighbourhood support-networks for such service or are they, in fact, more isolated than apartment dwellers? Are older couples in less need than seniors living alone? Are seniors with incomes above a specified level in less need than those with lower incomes? How can you derive an operational measure of the risk of institutionalization? How does ethnicity affect the level of need and the ability of the service agency to reach individuals in need? When these and similar questions have been considered appropriate variables can be selected, as depicted in Figure 8.

Figure 8

Possible Variables for Policy Analysis of

Seniors' Home Support Programs

- area % of Metro Population 65 +;
- area % of Metro 75 +;
- area % of Metro seniors receiving GAINS in Metro;
- area % of Metro senior owner-occupiers;
- area % of Metro seniors living alone;
- area % of Metro households receiving GAINS;
- area % of Metro seniors receiving home care;
- area % of Metro household receiving rent subsidies;
- area % of Metro senior owner-occupiers whose houses are in need of major repairs;
- area % of Metro owner-occupiers in homes built before 1930;
- area % of Metro seniors whose mother tongue is not English; and
- area % of Metro senior households with income below SPC minimums.

The actual analysis involves devising formulae using different variables and evaluating the way each variation of the formula allocates funds to each of the 25 service areas. This is accomplished with a spreadsheet program which allows all the relevant information, variables characterizing the 25 service areas, weights for the variables, and allocation formulae to be laid out on a table that automatically computes and presents the results.

The formulae can take different functional forms or use different

variables or weighting schemes. Changes to an individual formula can be made easily and within seconds. The last column of the spreadsheet lists the revised allocations, always equaling the total funds available. As a result, comparison of various allocation formulae can reveal significant differences in how funds would be distributed across Metro.

In reality, an infinite number of allocation formulae, ranging from simple to complex could be readily developed and tested using a spreadsheet program. However, the purpose of this example is not to develop such a formula but rather to outline the process. In this context a good base line allocation might be the number of services in each area. While this may be equitable at one level, it doesn't take into account many other factors: for example, the ability of elderly couples to assist one another. A better formula might be one that gives equal weight to several factors indicative of vulnerability: percentage over age 75; percentage living alone; percentage with income below the poverty level. Another possibility might be a formula which assigns seniors living alone a weight of 3; seniors receiving GAINS a weight of 2; and seniors living in homes built before 1930 a weight of 1. A more complex formula would be necessary if program revenues from client fees are considered. In this case a mix of high and low income seniors might be selected to maximize the total number of service units provided.

Although the microcomputer and available software can be an extremely valuable tool for policy analysis, the planning process will remain heavily dependent on the skills, experience and intuitive knowledge of

the planner/analyst. It's the planner/analyst who not only develops and evaluates the allocation formulae but who provides the understanding of human relationships, knowledge of organizational and interorganizational behaviour, political astuteness, etc. which are necessary to insure that the policy objectives are ultimately achieved. In this example, because of the implementation and agency approval constraints, these non-technical aspects are of particular importance.

3.2 Example 2 - Program Planning and Management

The availability of microcomputers and a wide range of software packages makes it feasible to manage many social programs efficiently at the community level. Consider programs designed to meet the various needs of seniors residing in the community; managers require three basic capabilities:

1. Planning - to plan and develop an effective mix of home care, transportation, recreation, health maintenance, and similar services, it's necessary to acquire and maintain information on demography, health, income, housing, etc. These 'social indicators' must be monitored to detect changes in the service area, and Metro as a whole, in order to provide a broad-based means of adapting programs to changing needs and conditions.

2. Monitoring - to comply with funding regulations and good financial management procedures, it is necessary

to have the capability to administer and control funds and operations on an ongoing basis.

3. Evaluation - in order to evaluate the effectiveness of programs it is necessary to collect, process, tabulate and analyse data indicating what activities have occured or what services have been provided, their location and the characteristics of the recipients.

A computer system could be readily developed with all three capabilities. It would be designed for the efficient collection, storage and retrieval of data, and the analysis and display of information. Such a system, utilizing available geoprocessing software, would permit the use of geographically-referenced data for a wide range of computer graphics applications. One of the most important, computer mapping, provides a valuable method for presenting and analysing information and would be applicable to all program management functions.

Maps are a useful tool for a number of reasons:

1. they make it possible to keep a large number of variables, areas and groups in mind at the same time, thereby making planning decisions easier;

2. they provide information in a manner that allows for both a quick over-view and a more detailed analysis; and

3. they provide a geographic perspective which is important for neighbourhood based programs.

Various types of maps can serve various purposes. For example, choropleth

maps can assist in policy analysis and planning by showing percentage differences in allocations to different service areas under different funding formulae. Dot or symbol maps can help monitor programs by showing the distribution of services among groups or within areas. And, contour or 3-D maps can display before and after data for evaluation purposes.

Although computer maps provide a very useful tool for program planning and management, care must be taken to ensure that their use is not abused. Because many of the statistical concepts underlying the creation of the maps remain abstract and out of view they lend themselves to misinterpretations. As noted previously, quantitative techniques made available on microcomputers can be used to greatest advantage when combined judiciously with the more qualitative aspects of social planning. The objective of introducing microcomputers into the planning process should therefore be the achievement of a more balanced 'hybrid' approach.

3.3 Example 3 - The Development of a Social Profile of East York

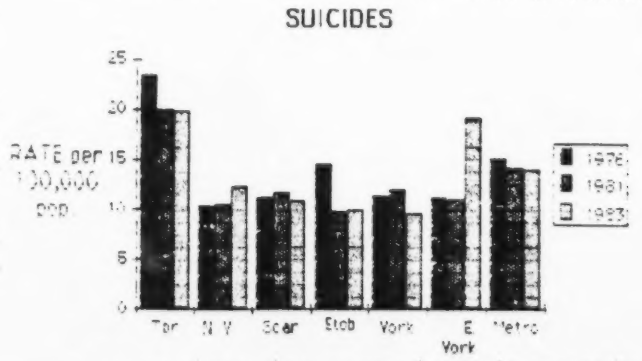
The development of a social profile for a specific area is perhaps the most general planning application for a microcomputer using commercially available software. Variables or indicators pertaining to demographic, housing, household, labour force, education, socio-econmomic and other characteristics can be readily obtained from the 1981 Census by tract and, along with data from other sources, be used with an 'integrated' software package such as Lotus 1-2-3 or the soon to be marketed Jazz. These packages combine three programs in one: a spreadsheet, a data base manager, and a graphic program. They offer the planner considerable flexibility; social variables can be entered into the spreadsheet where

they can be manipulated to form percentages, rates, etc., or used to create new composite indicators; data files can be updated, indexed, expanded or cross-referenced; and data can be displayed in various graphical formats to enhance understanding of the social environment. Overall, those packages offer the planner a useful indicative tool to identify geographical areas or population groups toward which specific social policies or programs can be targeted.

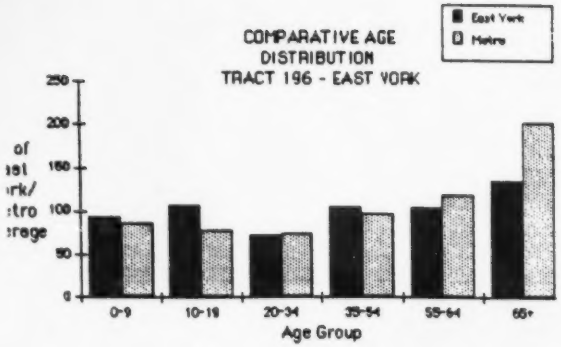
	# FIRES	INJURED	DEATHS	EST $ LOSS	FIRE INC. RATE	$ LOSS PER CAPITA
METRO TORONTO	5,609	324	24	$28,609,380.00	262.40	13.39
ETOBICOKE	576	21	-	$3,099,818.00	192.80	10.38
SCARBOROUGH	662	20	1	$3,872,688.00	149.30	8.73
TORONTO	2,755	178	17	$13,014,483.00	459.80	21.72
YORK	183	15	2	$3,440,496.00	135.90	25.56
EAST YORK	223	29	-	$490,339.00	218.70	4.8
NORTH YORK	1,210	61	4	$4,692,056.00	216.30	8.39
ONTARIO	24,450	N.A.	179	$225,536,676.00	281.10	25.93

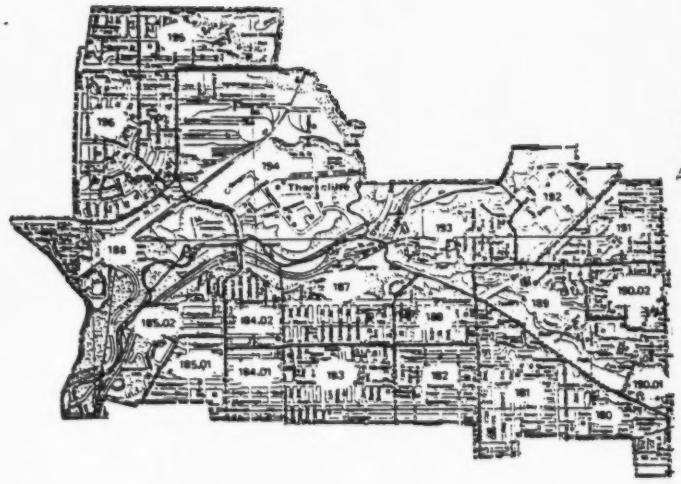
Source ONTARIO FIRE MARSHAL

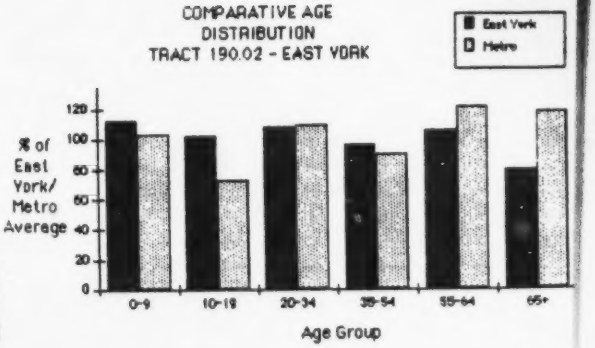
	SUICIDES - RATE PER 100,000 pop					
	1976		1981		1983	
	NO	RATE	NO.	RATE	NO.	RATE
TORONTO	148	23.4	119	20.00	129	19.8
NORTH YORK	58	10.4	59	10.50	70	12.3
SCARBOROUGH	43	11.1	50	11.60	49	10.9
ETOBICOKE	43	14.5	29	9.70	30	9.9
YORK	16	11.3	16	12.00	13	9.6
EAST YORK	12	11.2	11	11.00	20	19.2
METRO TORONTO	320	15.1	299	14.10	311	14.00

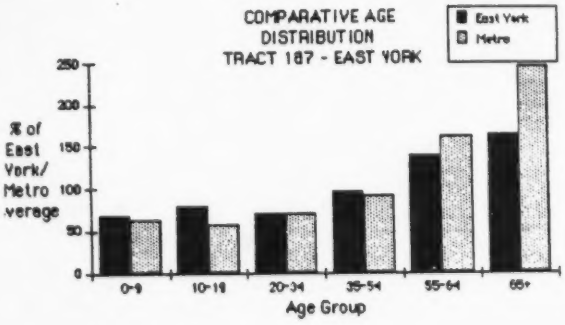


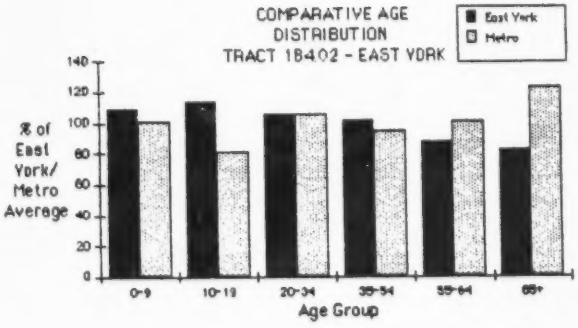
Source: Ministry of Solicitor General

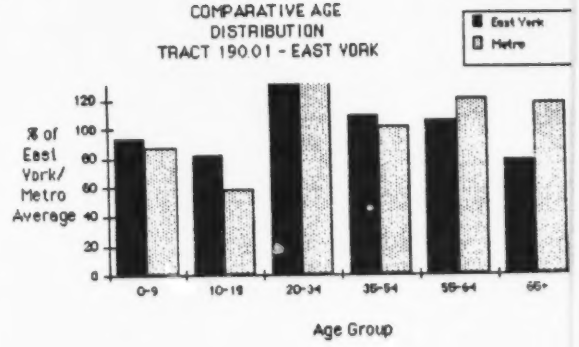












Source: 1981 CENSUS

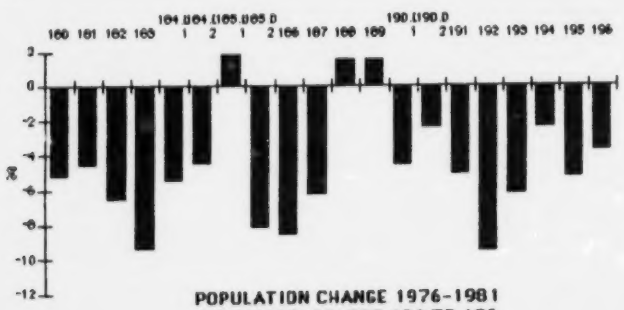
AGE-SEX GROUPS AS PERCENTAGE OF TOTAL TRACT/MUNICIPAL POPULATION
1976

		MALES											FEMALES									
TRACT	TOT POP	0-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65-69	70+	0-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65-69	70+
180	6,112	2.9	2.9	2.9	3.0	5.6	10.5	4.5	4.7	3.6	1.6	2.3	2.8	3.1	2.9	3.7	7.3	11	4.7	6.5	5.8	2.8	4.7
181	8,757	3.1	3.1	3.9	4.2	4.0	7.5	6.0	6.4	4.7	2.1	3.5	3.0	3.3	3.1	3.9	3.9	7.1	5.8	6.3	6.2	2.5	6.5
182	5,997	3.4	3.4	3.9	4.0	4.5	7.2	5.5	6.1	5.2	2.4	3.9	3.0	3.3	3.1	3.8	3.8	7.5	5.1	6.6	6.1	3.3	5.1
183	7,927	3.5	3.7	3.8	4.4	4.2	6.7	5.8	6.1	4.7	2.4	3.7	3.7	3.4	3.8	3.8	4.0	6.7	6.2	6.1	5.6	2.7	4.9
184	9,160	3.5	3.4	3.3	3.1	4.7	9.5	5.6	5.5	4.4	1.9	2.7	3.7	3.1	3.0	3.5	5.7	9.1	5.6	5.7	5.0	2.6	4.6
185	11,789	3.1	2.0	2.2	2.3	4.5	11.4	5.8	4.5	4.1	1.9	2.8	3.1	2.4	2.1	3.1	7.2	11.9	5.7	6.0	5.4	2.6	5.4
186	2,057	1.9	2.2	2.9	2.4	3.2	6.6	4.4	5.3	6.8	3.6	5.1	2.2	2.2	2.9	2.7	3.2	7.5	4.6	7.8	10.2	4.6	8.3
187	3,244	2.2	2.3	2.6	2.9	2.6	5.4	5.2	6.2	7.1	4.3	6.2	1.8	1.7	2.3	3.1	2.8	5.5	5.5	7.1	10.2	5.3	8.5
188	1,855	3.0	2.2	2.7	2.7	4.3	5.7	4.6	6.5	7.8	3.8	4.9	1.9	1.9	2.2	3.0	3.5	5.4	4.6	7.0	10.5	4.6	7.3
189	5,910	3.6	3.1	3.2	4.0	5.3	8.6	5.6	4.5	4.9	1.4	2.6	3.7	3.1	3.3	4.1	5.8	9.5	5.3	5.8	4.8	1.5	6.2
190	12,093	3.1	2.3	2.3	2.9	6.5	12.5	5.6	5.1	4.2	1.3	1.7	3.5	2.2	2.3	3.4	7.9	12.1	5.4	6.1	5.3	1.8	2.6
191	4,446	3.1	3.6	3.6	4.0	4.8	7.5	4.8	6.3	7.4	1.7	2.8	2.6	2.5	3.0	3.9	4.7	7.9	4.4	7.8	7.6	2.5	4.0
192	563	5.3	2.4	2.7	1.8	5.3	13.3	5.3	3.6	2.7	1.8	1.8	4.4	2.7	2.7	3.6	8.0	11.5	4.4	5.3	4.4	2.7	2.7
193	2,709	1.8	2.2	2.2	3.1	4.4	8.1	4.1	5.9	7.6	3.5	3.9	2.0	1.7	2.4	3.5	4.4	7.4	5.0	8.1	8.5	3.9	6.5
194	11,727	2.9	2.1	1.5	1.7	3.8	11.1	5.7	4.4	4.7	2.0	3.5	2.9	2.1	1.5	2.1	5.5	12.9	5.4	5.4	7.1	3.3	8.0
195	5,587	2.1	2.6	2.7	2.8	3.3	8.1	4.6	5.4	7.1	3.1	4.4	2.5	2.1	2.4	2.7	4.2	8.4	5.0	7.1	9.5	4.2	6.4
196	7,009	2.6	2.7	2.8	2.9	2.9	6.1	5.4	4.8	6.3	3.1	4.8	2.3	2.6	3.2	2.9	3.6	7.1	5.8	6.4	9.2	4.5	8.3
GMA	2,803,101	3.6	4.0	4.6	4.5	4.4	8.5	6.5	6.0	3.9	1.3	1.9	3.4	3.8	4.3	4.5	4.8	8.7	6.3	6.0	4.2	1.6	3.3
METRO	2,124,030																						
E. YORK	106,950	3.0	2.7	2.9	3.1	4.5	9.1	5.4	5.3	5.1	2.2	3.3	3.0	2.6	2.7	3.3	5.3	9.4	5.4	6.3	6.7	3.0	5.7
ETOB.	297,110	2.9	3.5	4.6	5.0	4.6	7.1	6.0	7.2	4.9	1.4	2.0	2.7	3.3	4.4	5.0	4.7	7.1	6.4	7.4	5.1	1.7	3.1
N. YORK	558,400	3.5	4.0	4.7	4.7	4.6	8.0	6.3	6.1	4.1	1.3	1.7	3.3	3.8	4.4	4.6	5.0	8.3	6.5	6.3	4.2	1.6	2.9
SCAR.	387,150	3.8	4.2	5.2	5.2	4.3	7.4	6.6	6.4	3.6	1.0	1.3	3.6	4.0	4.9	5.1	4.5	8.0	6.8	6.4	3.7	1.3	2.7
TOR.	633,320	3.0	3.2	3.5	3.8	4.7	9.8	6.1	5.7	4.1	1.7	2.8	2.9	3.1	3.4	3.8	5.5	9.4	5.8	5.7	4.8	2.2	5.0
YORK	141,365	3.8	3.8	3.9	3.9	4.5	8.8	6.1	5.8	4.2	1.6	2.4	3.5	3.6	3.6	4.0	5.1	8.9	5.9	6.0	4.7	2.0	3.9

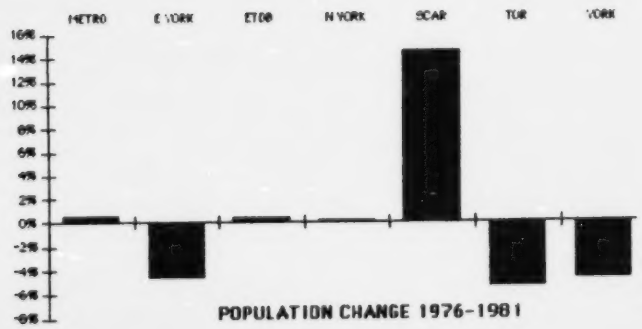
Source: 1976 census

DISTRIBUTION OF AGE GROUPS IN EAST YORK, 1981

TRACT	MALE AND FEMALE												TOTALS
	0-9		10-19		20-34		35-54		55-64		65+		
	#	%	#	%	#	%	#	%	#	%	#	%	
180	550	5.0	720	6.5	1930	6.7	1225	5.3	620	5.3	755	4.7	5800
181	940	8.5	1060	9.5	2065	7.2	1905	6.2	1030	8.8	1360	8.5	8360
182	695	6.3	745	6.7	1415	4.9	1260	5.4	645	5.5	845	5.3	5605
183	895	8.1	1040	9.4	1775	6.2	1680	7.2	740	6.3	1065	6.6	7195
184.01	610	5.5	640	5.8	1410	4.9	1080	4.6	460	3.9	555	3.5	4755
184.02	465	4.2	490	4.4	1170	4.1	915	3.9	405	3.4	510	3.2	3955
185.01	850	7.7	655	5.9	2350	8.2	1575	6.8	690	5.9	835	5.2	6955
185.02	450	4.1	475	4.3	1455	5.1	1070	4.6	455	3.9	640	4.0	4545
186	145	1.3	200	1.8	355	1.2	450	1.9	275	2.3	450	2.6	1675
187	225	2.0	260	2.3	605	2.1	670	2.9	495	4.2	785	4.9	3040
188	170	1.5	210	1.9	395	1.3	410	1.8	315	2.7	410	2.6	1910
189	710	6.4	640	5.8	1580	5.5	1210	5.2	580	4.9	815	5.1	5535
190.01	765	6.9	665	6.0	2645	9.9	1855	8.0	780	6.6	580	3.6	7490
190.02	500	4.5	460	4.1	1265	4.4	905	3.9	505	4.3	515	3.2	4150
191	420	3.8	520	4.7	1165	4.1	945	4.7	625	5.3	535	3.3	4210
192	65	0.6	50	0.4	185	0.6	115	0.5	55	0.5	145	0.9	615
193	210	1.9	245	2.2	655	2.3	570	2.5	360	3.1	500	3.1	2540
194	1210	10.9	770	6.9	3500	12.2	2580	11.1	1215	10.3	2170	13.5	11445
195	510	4.6	470	4.2	1335	4.6	1180	5.7	705	6.0	1095	6.8	5295
196	690	6.2	790	7.1	1380	4.8	1605	6.9	825	7.0	1450	9.0	6740
TOTAL	11075	100.0	11105	99.9	28835	100.3	23205	100.1	11780	100.2	16015	99	102015



POPULATION CHANGE 1976-1981
EAST YORK-TRACTS 180 TO 196

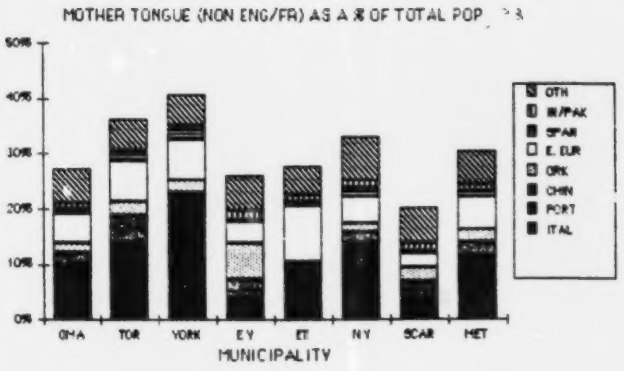


POPULATION CHANGE 1976-1981

MOTHER TONGUE % OF TOTAL 1981

	ENG & FR	NON E/F	ITAL	PORT	CHIN	GRK	EAST EUR	SPAN	INDO PAK	OTHER
180	81.2	18.8	2.4	1.0	3.4	2.7	2.7	0.3	1.1	5.2
181	76.3	23.7	5.8	0.8	3.3	4.2	3.0	0.2	0.6	6.0
182	72.6	27.4	8.0	1.0	3.3	5.7	3.5	0.1	0.5	5.3
183	60.2	39.8	11.6	0.6	4.6	13.1	3.3	0.3	0.3	6.0
184.01	59.3	40.7	7.5	0.7	5.6	17.4	3.8	0.3	0.8	4.6
184.02	66.9	33.1	4.0	0.5	4.0	13.9	4.2	0.3	1.3	4.9
185.01	60.5	39.5	2.8	0.4	7.0	17.3	3.6	0.4	0.9	7.1
185.02	68.4	31.6	3.0	0.3	3.8	12.2	5.5	0.7	0.4	5.7
186	92.6	7.4	0.3	0.3	0.3	0.3	2.4	0.0	0.0	3.8
187	74.5	25.5	4.1	0.5	2.1	6.6	5.4	0.3	0.3	6.2
188	71.6	28.4	6.1	0.8	3.2	4.5	6.4	0.0	0.0	7.4
189	75.6	24.4	3.1	0.4	3.0	4.5	4.6	0.6	1.9	6.3
190.01	69.1	30.9	1.3	1.2	7.1	1.8	4.1	0.9	5.8	8.7
190.02	82.4	17.6	2.3	0.2	2.0	2.3	3.6	0.5	1.7	5.0
191	79.9	20.1	3.2	0.2	3.0	3.3	3.4	0.4	0.5	6.1
192	75.6	24.4	0.0	0.0	0.0	3.3	2.4	0.0	1.6	17.1
193	77.8	22.2	2.8	0.2	2.2	3.3	4.7	0.6	1.2	7.2
194	71.9	28.1	0.4	0.3	1.9	4.9	3.4	0.7	6.3	10.2
195	87.2	12.8	0.8	0.2	1.1	1.5	4.6	0.2	0.1	4.3
196	91.7	8.3	0.7	0.1	0.7	0.4	3.2	0.0	0.1	3.1
TOR CMA	72.8	27.2	7.3	2.6	2.3	1.7	5.3	0.8	1.2	6.0
TORONTO	63.8	36.2	6.1	8.2	4.6	2.4	7.4	1.1	0.8	5.6
YORK	59.1	40.9	18.9	3.2	1.0	2.3	7.3	1.7	0.9	5.6
EAST YORK	73.8	26.2	3.6	0.5	3.4	6.5	3.8	0.4	1.7	6.3
ETOBICOKE	72.1	27.9	7.8	1.0	1.0	0.8	9.9	0.8	1.2	5.4
NORTH YORK	66.7	33.3	12.8	0.6	2.3	1.7	5.5	1.5	1.6	7.3
SCARBOROUGH	79.7	20.3	3.6	0.6	2.7	2.4	2.7	0.4	1.5	6.4
METRO TORONTO	69.2	30.8	8.3	3.0	2.8	2.2	6.0	1.0	1.2	6.3

SOURCE: 1981 CENSUS



EDUCATION

CMA

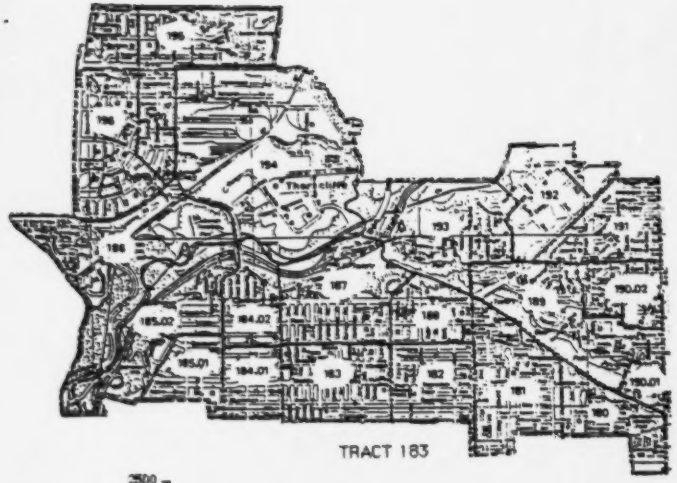
TRACT 181

TRACT 182

TRACT 183

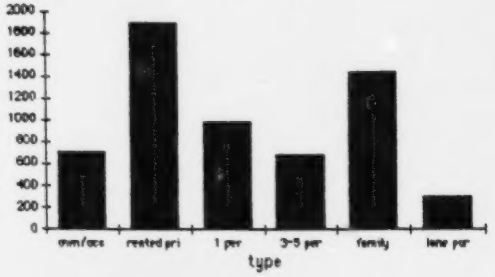
TRACT 184.01

Source: 1981 census

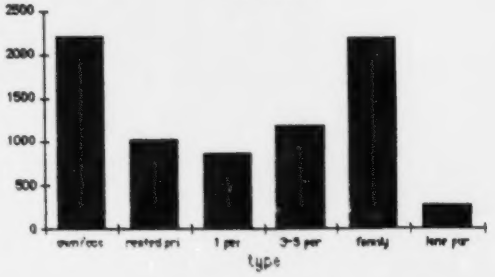


PRIVATE DWELLING OCCUPANCY

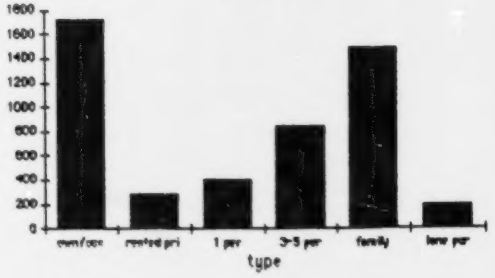
TRACT 180

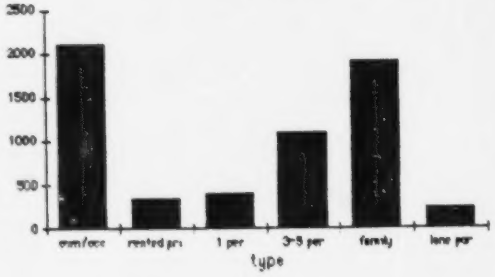


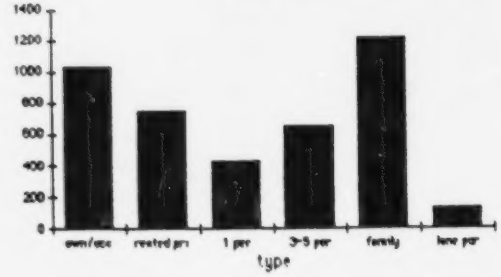
TRACT 181



TRACT 182







	1	2	3	4	5	6	7	8	9	10	11	12	13
1													
2		TOTAL INC	FAMILIES IN	LOW INC.	INCIDENCE	UNATTACHED	ECONOMIC	LOW INC.	INCIDENCE	MEDIAN	% DWELLINGS	DWELLINGS	% DWELL.
3		1980 CENSUS	PRIVATE	UNATTACHED	OF LOW INC.	PERS. 15+	FAMILIES	EC. FAM.	OF LOW INC.	LENGTH	CONSTRUCTED	REQ MAJOR	REQ MAJOR
4	TRACT	FAMILIES	HOUSEHOLDS	PERS. (1980)	UNATT. PERS		1981	1981	EC. FAM.	OCCUPANCY	ON/BEF 1960	REPAIRS	REPAIRS
5													
6	180	21,831	1,480	495	38.6	1,295	1,535	255	16.5	4	32.6	160	6.1
7	181	24,771	2,250	460	41.7	1,105	2,340	245	10.5	7	81.3	225	7.0
8	182	24,195	1,570	235	40.6	575	1,570	155	9.9	11	93.5	135	6.8
9	183	23,522	1,990	220	35.8	620	2,010	295	14.5	10	93.9	160	6.6
10	184.01	23,909	1,275	170	26.0	665	1,265	205	16.1	5	75.3	135	7.6
11	184.02	24,412	1,065	185	31.6	600	1,100	160	14.6	5	82.0	95	6.0
12	185.01	21,170	1,795	385	25.8	1,490	1,830	335	18.3	4	50.6	165	5.3
13	185.02	25,502	1,120	275	26.8	1,045	1,150	145	12.3	4	48.2	155	7.6
14	186	50,742	540	40	14.3	300	555	35	6.2	9	95.2	20	2.4
15	187	28,769	930	120	27.9	430	965	55	6.0	11	98.5	60	4.6
16	188	32,343	525	75	32.7	230	530	40	8.1	11	95.2	30	4.1
17	189	27,080	1,475	115	21.4	555	1,465	140	9.6	5	45.1	80	4.1
18	190.01	25,122	1,995	265	15.9	1,655	2,075	225	10.8	3	15.9	355	10.2
19	190.02	23,164	1,185	135	20.4	670	1,220	180	14.5	4	65.7	205	11.4
20	191	26,281	1,175	215	40.7	530	1,170	105	9.2	9	91.9	115	7.1
21	192	20,553	155	85	38.7	220	160	25	15.5	2	63.4	20	5.6
22	193	34,018	760	80	25.5	310	775	45	5.6	9	71.4	65	6.3
23	194	27,187	3,085	450	18.3	2,490	3,175	270	11.7	4	20.3	190	3.5
24	195	34,808	1,550	200	23.3	845	1,625	105	6.4	9	97.7	105	4.5
25	196	40,616	1,850	235	21.6	1,090	1,895	50	2.7	11	96.2	100	3.4
26													
27	EAST YORK	27,278	27,780	4,465	26.6	16,720	28,410	3,170	11.2	5	63.1	2,575	6.1
28													
29	CANADA	26,748			38.5				13.0	5	45.8		6.7
30	ONTARIO	28,002			35.5				11.4	5	48.9		5.7
31	CMA	31,238	785,395	109,355	32.9	332,105	784,070	89,520	11.4	4	44.3	53,470	5.1
32	TORONTO	29,794	135,920	47,220	34.3	137,855	137,455	23,635	17.2	4	69.0	17,400	7.2
33	YORK	24,906	35,290	7,095	38.0	18,670	35,665	5,645	15.8	5	68.3	3,735	7.3
34	ETOBICOKE	32,661	83,410	8,225	29.5	27,845	83,410	7,930	9.5	6	48.0	4,605	4.3
35	NORTH YORK	31,847	151,300	16,140	31.9	50,520	150,765	19,515	12.9	5	35.1	8,720	4.6
36	SCARBOROUGH	29,615	120,335	12,335	38.1	32,380	119,420	13,385	11.2	4	35.9	6,605	4.6
37	METRO TORONTO		554,035	95,380	33.6	283,990	555,125	73,280	13.2				
38													
39													

SOURCE: 1981 CENSUS

	% OWNER OCC. PRI. DWELLING	OWNER OCC. PRI. DWELLING	RENTED PRIVATE DWELLING	TOTAL PRIVATE DWELLINGS	ONE PERSON HOUSEHOLDS	% ONE PERSON HOUSEHOLDS	3 - 5 PERSON HOUSEHOLDS	% 3 - 5 PERSON HOUSEHOLDS	FAMILY HOUSEHOLDS	% FAMILY HOUSEHOLDS	L. P. FAM AS % OF FAM IN PRI HSE.	LONE PARENT FAMILIES IN PRI. HSEHLD.
TRACT												
180	27.6	720	1890	2610	985	37.7	690	26.4	1440	55.2	20.6	305
181	68.3	2210	1020	3230	850	26.3	1185	36.7	2190	67.8	12.2	275
182	85.8	1725	285	2010	400	19.9	840	41.8	1490	74.1	12.5	195
183	86.1	2105	340	2445	400	16.4	1080	44.2	1900	77.7	12.0	240
184.01	57.9	1030	750	1780	430	24.2	650	36.5	1215	68.3	10.5	135
184.02	49.5	785	800	1585	430	27.1	560	35.3	1050	66.2	12.1	130
185.01	23.9	750	2380	3130	1180	37.7	905	28.9	1745	55.8	13.6	245
185.02	36.9	750	1285	2035	765	37.6	495	24.3	1090	53.6	11.7	130
186	63.9	540	305	845	270	32.0	235	27.8	535	63.3	9.3	50
187	88.9	1160	145	1305	305	23.4	395	30.3	915	70.1	10.8	100
188	91.5	650	60	710	120	16.9	280	39.4	540	76.1	9.1	50
189	39.1	760	1185	1945	390	20.1	845	43.4	1435	73.8	12.1	180
190.01	37.9	1315	2155	3470	1250	36.0	975	28.1	1950	56.2	14.5	290
190.02	34.8	625	1170	1795	525	29.2	600	33.4	1170	65.2	15.6	185
191	70.6	1150	480	1630	355	21.8	670	41.1	1170	71.8	11.8	140
192	13.2	45	295	340	175	51.5	65	19.1	140	41.2	17.2	25
193	67.1	695	340	1035	225	21.7	355	34.3	735	71.0	13.2	100
194	0.4	20	5375	5395	2050	38.0	1345	24.9	3020	56.0	14.4	445
195	73.2	1720	630	2350	685	29.1	710	30.2	1535	65.3	10.6	165
196	67.8	1955	930	2885	905	31.4	940	32.6	1835	63.6	8.9	165
EAST YORK	48.7	20,710	21,820	42,530	12,695	29.8	13,820	32.5	27,070	64.3	12.8	
CANADA	62.1			8,281,530		20.3		45.3		75.2	11.3	
ONTARIO	63.3			2,969,785		20.6		45.3		75.4	11.0	
CMA	56.5	587,300	453,035	1,040,355	226,560	21.8	466,380	44.8	762,360	73.3	11.8	92,575
TORONTO CITY	40.7	98,270	142,995	241,270	90,505	37.5	71,830	29.8	130,070	53.9	14.9	20,325
YORK	51.6	26,365	26,690	51,055	13,955	27.3	19,640	38.5	34,285	67.2	12.6	4,440
ETOBICOKE	58.9	62,450	43,495	105,945	20,020	18.9	47,060	44.4	81,400	76.8	11.9	9,920
NORTH YORK	51.9	99,035	91,720	190,750	36,055	18.9	88,885	46.6	146,775	76.9	13.0	19,670
SCARBOROUGH	61.3	88,755	56,090	144,815	22,935	15.8	73,920	51.0	116,875	80.9	12.9	15,520

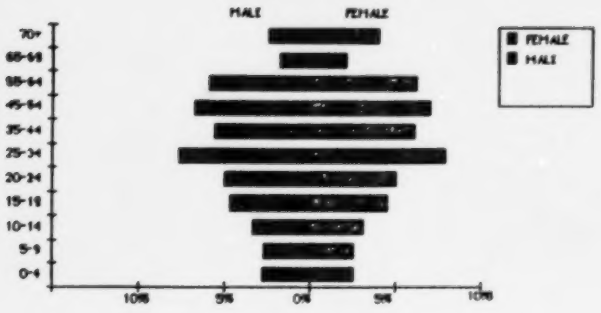
SOURCE: 1981 CENSUS

	1	2	3	4	5	6
1						
2						
3		Population	Total Deaths		Deaths in Hospitals	
4						
5			#	Rate*	#	% Total
6						
7				1971		
8	Metro Toronto	2,086,017	14,245	6.8	10,849	76.2
9	Etobicoke	282,686	1,763	6.2	1,393	79.0
10	Scarborough	334,310	1,636	4.9	1,199	73.3
11	Toronto	712,786	6,438	9.0	4,765	74.0
12	York	147,301	962	6.5	798	83.0
13	East York	104,784	935	8.9	691	73.9
14	North York	504,150	2,511	5.0	2,003	79.8
15						
16				1976		
17	Metro Toronto	2,124,291	14,654	6.9	11,579	79.0
18	Etobicoke	297,109	1,869	6.3	1,465	78.4
19	Scarborough	387,149	2,172	5.6	1,539	70.9
20	Toronto	633,318	5,763	9.1	4,574	79.4
21	York	141,367	952	6.7	879	92.3
22	East York	106,950	976	9.1	789	80.3
23	North York	558,398	2,922	5.2	2,338	80.0
24						
25				1981		
26	Metro Toronto	2,137,395	15,352	7.2	11,393	74.3
27	Etobicoke	298,713	2,106	7.1	1,533	72.8
28	Scarborough	443,353	2,601	5.9	1,861	71.5
29	Toronto	599,217	5,312	8.9	3,901	73.4
30	York	134,617	961	7.1	749	77.9
31	East York	101,974	959	9.4	755	78.7
32	North York	559,521	3,386	6.1	2,594	76.6
33						
34	* Per 1000 Pop					
35	** Per 1000 live births					
36						
37						
38						
39						

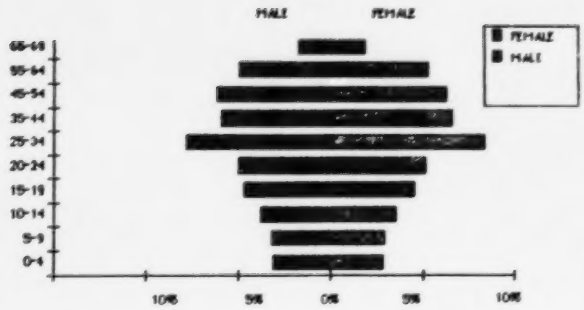
SOURCE: REGISTRAR GENERAL OF ONTARIO

	7	8	9	10	11	12	13	14
1								
2								
3	Infant Deaths		Births		Born to Unmarried Mothers	Marriages		
4								
5	#	Rate**	#	Rate**	#	#	Rate**	
6								
7								
8	461	13.0	35,566	17.0	2,646	20,768	10.0	
9	54	14.1	3,818	13.5	210	1,423	5.0	
10	67	12.1	5,546	16.6	351	1,964	5.9	
11	179	14.4	12,456	17.5	1,330	14,557	20.4	
12	34	11.9	2,869	19.5	234	539	3.7	
13	18	9.6	1,873	17.9	152	234	2.2	
14	109	12.1	9,004	17.9	369	2,051	4.1	
15								
16								
17	340	11.2	30,228	14.2	2,565	21,021	9.9	
18	41	12.1	3,401	11.4		1,863	5.6	
19	62	11.2	5,538	14.3		2,092	5.4	
20	111	11.7	9,468	14.9		14,706	23.2	
21	30	12.5	2,396	16.9		394	2.8	
22	14	8.6	1,629	15.2		251	2.3	
23	82	10.5	7,796	14.0		1,915	3.4	
24								
25								
26	243	8.5	28,489	13.3	2,924	20,084	9.4	
27	30	8.5	3,543	11.8	319	1,925	6.4	
28	50	7.7	6,464	14.6	615	2,650	6.0	
29	70	9.3	7,512	12.5	937	11,237	18.8	
30	21	10.5	1,991	14.8	225	409	3.0	
31	8	5.3	1,506	14.8	135	244	2.4	
32	64	8.6	7,482	13.4	693	3,619	6.5	
33								
34								
35								
36								
37								
38								
39								

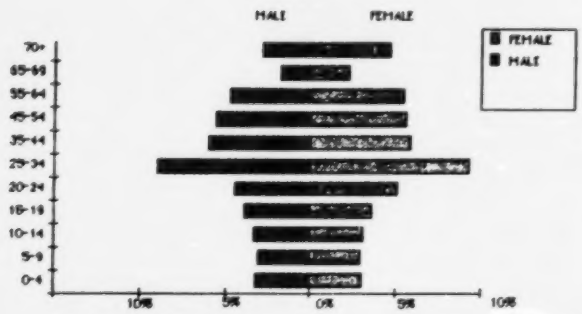
AGE - SEX 1981
ETOBICOKE



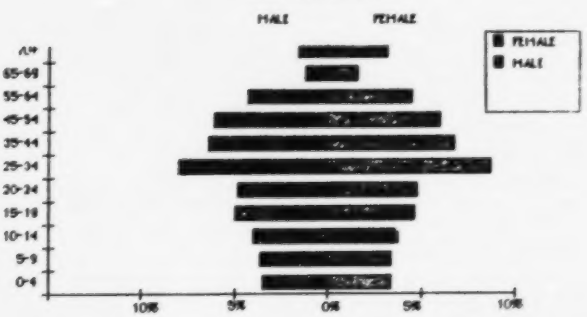
AGE - SEX 1981
NORTH YORK



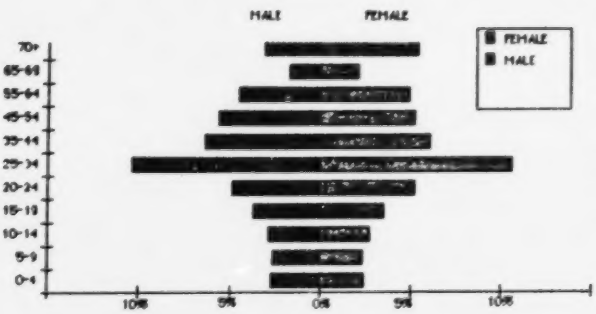
AGE - SEX 1981
YORK



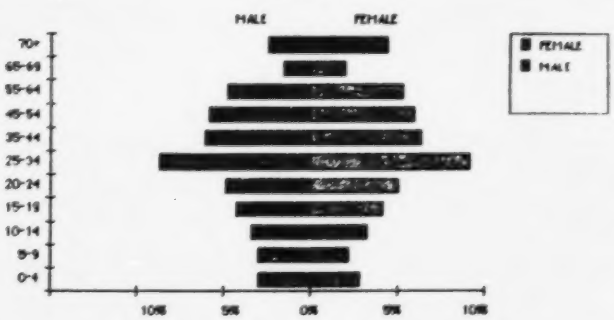
AGE - SEX 1981
SCARBOROUGH



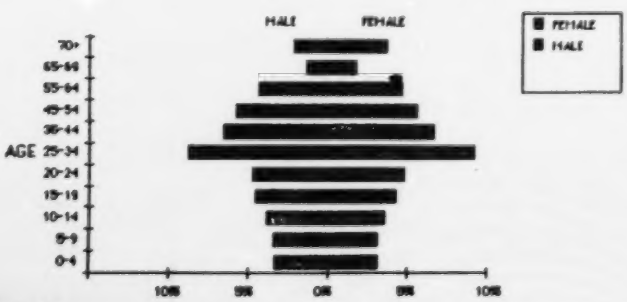
AGE - SEX 1981
TORONTO



AGE - SEX 1981
METRO



AGE - SEX 1981
CMA



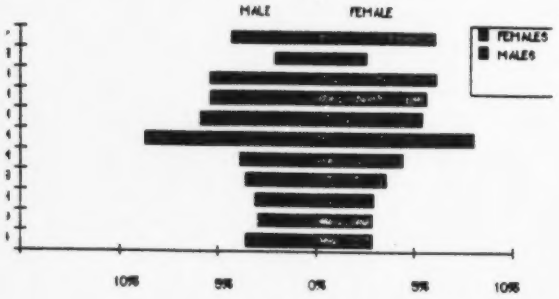
AGE-SEX GROUPS AS PERCENTAGE OF TOTAL TRACT/MUNICIPAL POPULATION
1981

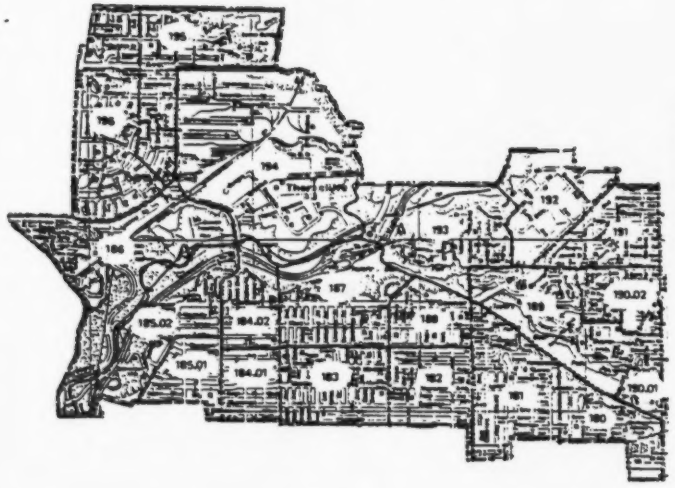
		MALES										
TRACT	TOT POP	0-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65-69	70+
180	5,796	2.7	2.2	2.9	3.4	5.1	10.2	4.8	4.7	4.4	1.4	2.6
181	8,354	3.2	2.9	3.2	3.6	4.4	8.1	5.4	6.2	5.3	2.1	4.0
182	5,601	3.6	3.0	3.1	3.6	3.9	8.7	5.9	5.4	5.4	2.1	4.3
183	7,182	3.0	3.3	3.4	4.0	4.2	8.1	5.7	6.3	4.7	1.9	4.4
184.01	4,753	3.7	2.9	3.4	3.4	4.2	10.2	6.2	5.3	4.1	1.8	2.9
184.02	3,952	3.3	2.8	2.7	3.5	4.4	9.6	6.7	5.4	4.7	1.6	3.4
185.01	6,952	3.8	2.3	2.0	2.4	4.2	11.2	6.3	5.0	4.0	1.5	2.9
185.02	4,551	2.4	2.3	2.0	2.9	4.0	10.3	7.0	4.9	4.4	1.5	3.3
186	1,880	2.1	1.9	2.1	3.2	2.4	5.9	6.1	5.3	5.9	2.9	5.9
187	3,039	2.5	1.5	2.0	2.8	3.3	6.7	4.8	6.1	6.9	3.1	6.7
188	1,883	2.1	2.4	2.9	3.5	3.7	6.6	5.3	5.3	7.7	3.7	5.3
189	5,541	3.6	3.1	2.9	3.0	4.7	8.8	5.9	4.9	4.5	1.9	3.4
190.01	7,484	3.2	2.0	1.3	2.6	6.1	12.2	6.7	4.9	4.6	1.5	1.5
190.02	4,147	3.5	2.4	2.5	3.0	5.1	9.6	5.2	5.4	5.3	2.2	2.9
191	4,221	2.6	2.1	2.5	4.0	4.9	9.0	5.2	5.9	7.0	2.3	3.0
192	617	4.1	2.4	1.6	1.6	5.7	8.9	7.3	2.4	3.2	2.4	6.5
193	2,538	2.2	1.8	2.2	2.4	4.3	8.3	5.5	4.9	5.7	3.0	5.3
194	11,451	3.5	2.2	1.7	1.6	3.0	10.4	6.1	4.3	4.3	2.0	3.9
195	5,290	2.6	2.3	2.0	2.6	3.0	9.1	5.5	4.9	5.6	3.2	5.2
196	6,742	2.4	2.7	2.9	3.0	2.7	6.2	6.7	5.0	4.8	2.7	5.4
MA	2,998,947	3.3	3.4	3.8	4.5	4.7	8.8	6.6	5.8	4.4	1.4	2.2
ETRO	2,137,291	3.0	3.0	3.4	4.3	4.9	8.7	6.1	5.9	4.8	1.6	2.5
YORK	101,950	3.1	2.5	2.5	3.0	4.1	9.2	5.9	5.2	5.0	2.1	3.8
OB.	298,713	2.8	2.7	3.4	4.7	5.0	7.6	5.6	6.7	5.9	1.8	2.5
YORK	559,521	3.1	3.2	3.8	4.7	5.0	7.8	5.9	6.1	4.9	1.7	2.4
AR.	443,353	3.5	3.6	4.0	5.0	4.8	8.0	6.4	6.1	4.3	1.2	1.6
R.	599,217	2.7	2.6	2.9	3.7	4.9	10.4	6.4	5.6	4.5	1.7	3.1
RK	134,617	3.2	3.1	3.3	3.9	4.5	9.0	6.0	5.6	4.8	1.8	2.9

						FEMALES								POP CHANGE	
0-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65-69	70+	% TOT POP	1976-1981 #	%
2.4	2.2	2.5	3.6	7.2	10.9	5.4	6.1	6.3	2.9	6.1	5.7	-316	-5.2
2.6	2.6	2.9	3.0	4.0	8.2	5.2	6.0	7.0	3.0	7.2	8.2	-403	-4.6
2.9	2.9	3.0	3.6	4.5	8.1	5.5	5.7	6.2	2.6	6.1	5.5	-396	-6.6
2.9	3.3	3.3	3.8	4.2	8.2	5.5	5.8	5.6	2.7	5.8	7.0	-745	-9.4
3.4	2.8	3.2	3.6	5.0	10.2	5.6	5.7	5.6	2.5	4.1	4.7	-276	-5.5
3.2	2.5	2.9	3.3	4.9	10.6	6.1	4.9	5.6	2.5	5.3	3.9	-187	-4.5
3.7	2.4	2.0	3.0	5.2	13.2	6.0	5.3	5.9	2.3	5.3	6.8	123	1.8
3.0	2.2	2.3	3.3	6.2	11.5	6.2	5.4	5.6	2.3	6.9	4.5	-409	-8.2
1.6	2.1	2.4	2.9	2.9	7.7	6.4	6.1	8.8	5.1	10.1	1.8	-177	-8.6
1.6	1.8	1.6	2.1	3.1	6.7	4.8	6.4	9.4	5.6	10.4	3.0	-205	-6.3
2.4	2.1	2.1	2.7	2.9	6.6	5.3	5.8	9.0	5.0	7.7	1.8	28	1.5
3.2	2.9	2.6	3.1	5.2	9.8	5.9	5.2	6.0	2.3	7.1	5.4	-369	-6.2
2.5	2.5	2.0	2.9	7.4	12.4	6.6	6.5	5.8	1.6	3.1	7.3	-362	-4.6
3.6	2.5	1.9	3.6	6.1	9.6	6.0	5.2	6.9	2.5	4.8	4.1	-100	-2.4
2.7	2.5	2.3	3.6	5.1	8.6	5.2	6.0	7.8	3.1	4.4	4.1	-225	-5.1
2.4	1.6	1.6	3.2	5.7	9.7	4.1	4.9	5.7	2.4	12.2	0.6	-54	9.6
2.4	2.0	2.2	3.0	4.3	8.9	5.9	6.1	8.5	3.5	7.9	2.5	-171	-6.3
3.0	1.9	1.6	1.7	4.7	12.5	6.5	5.6	6.3	3.6	9.4	11.2	-276	-2.4
2.6	2.2	2.0	2.3	3.1	10.0	6.0	6.0	7.8	4.1	8.2	5.2	-297	-5.3
2.6	2.4	2.5	3.3	3.0	8.6	6.8	5.3	7.4	4.2	9.2	6.6	-267	-3.8
3.2	3.2	3.6	4.3	4.9	9.3	6.7	5.7	4.7	1.8	3.7			
2.9	2.8	3.3	4.2	5.1	9.2	6.4	6.0	5.3	2.0	4.4	100.0	13M	0.6
2.8	2.4	2.4	3.0	4.8	10.0	5.9	5.7	6.6	3.0	6.8	4.8	-5M	-4.7
2.6	2.6	3.2	4.6	5.1	7.9	6.1	7.0	6.2	2.1	4.0	14.3	1.6M	0.5
2.9	3.0	3.6	4.6	5.2	8.4	6.6	6.3	5.3	1.9	3.8	26.2	1.1M	0.2
3.4	3.4	3.8	4.7	4.9	8.8	6.8	6.1	4.6	1.6	3.2	20.7	56M	14.5
2.5	2.4	2.8	3.6	5.3	10.7	6.2	5.3	5.0	2.2	5.5	28.0	-34.1M	-5.4
3.1	3.0	3.2	3.7	5.2	9.4	5.9	5.7	5.5	2.3	4.7	6.3	-6.75M	-4.8

SOURCE : 1981 CENSUS

AGE -SEX 1981
TRACT 182 EAST YORK





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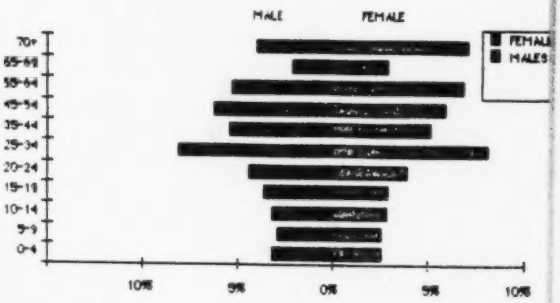

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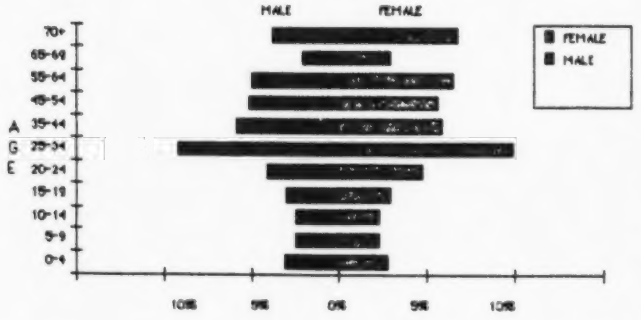

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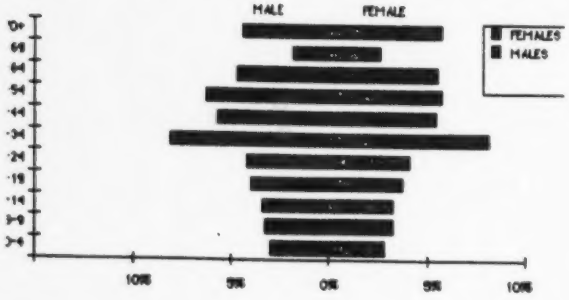

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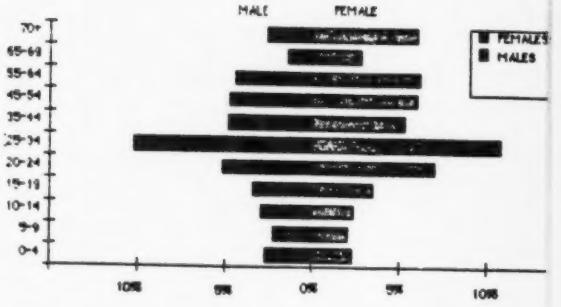

SOURCE: 1981 CENSUS

TRACT	MALE PARTIC. RATE	FEMALE PARTIC. RATE	UNEMPLOYED PERSONS JUNE 1981	UNEMP. RATE	LABOUR FORCE
180	78.6	58.6	125	3.8	3,305
181	75.4	52.5	180	4.1	4,370
182	77.4	56.2	95	3.1	3,045
183	76.4	52.0	145	3.9	3,705
184.01	80.2	61.1	110	4.1	2,695
184.02	76.9	55.7	100	4.7	2,145
185.01	79.4	63.7	245	6.0	4,115
185.02	79.8	68.2	85	3.1	2,770
186	73.0	47.1	15	1.6	940
187	67.2	47.8	50	3.3	1,535
188	69.3	54.3	40	4.1	975
189	81.3	62.5	130	4.3	3,020
190.01	87.1	73.1	145	2.8	5,145
190.02	81.6	63.0	85	3.4	2,480
191	78.6	59.1	35	1.4	2,450
192	80.4	49.2	10	2.9	345
193	75.5	57.2	40	2.8	1,425
194	80.4	61.8	230	3.4	6,690
195	73.8	58.9	45	1.5	2,970
196	77.6	48.9	80	2.3	3,495
EAST YORK	78.3	58.8	1,990	3.5	57,620
CANADA	78.2	51.8		7.4	
ONTARIO	79.7	55.2		5.6	
CMA	82.2	60.7	66,025	3.9	1,678,565
TORONTO CITY	78.5	60.7	16,170	4.7	343,780
YORK	79.0	58.1	3,140	4.3	73,825
ETOBICOKE	81.5	59.6	6,190	3.6	172,485
NORTH YORK	81.3	60.1	13,140	4.2	313,245
SCARBOROUGH	83.0	61.5	9,265	3.8	246,590
METRO			49,895	4.1	1,207,545

SOURCE: 1981 CENSUS

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